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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/199,655 11/25/98 MATHIES

R 71180-024827

EXAMINER

IM22/0315

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REX.P	
ART UNIT	PAPER NUMBER

1743

DATE MAILED:

03/15/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/199,655Applicant(s)
Mathles et al.Examiner
Patricia Kathryn B xGroup Art Unit
1743☒ Responsive to communication(s) filed on Dec 15, 1998☒ This action is **FINAL**.☒ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-30 is/are pending in the applicatOf the above, claim(s) 15-30 is/are withdrawn from consideration☐ Claim(s) _____ is/are allowed.☒ Claim(s) 1-14 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been☐ received.☐ received in Application No. (Series Code/Serial Number) _____☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2☐ Interview Summary, PTO-413☒ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-14, drawn to a liquid-handling system, classified in class 422, subclass 100.
 - II. Claims 15-30, drawn to a method for transferring liquid, classified in class 436, subclass 180.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions of Group II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as the separation of biomolecules by capillary electrophoresis.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Joel German on February 14, 2000 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-30 are

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first translation subsystem means for transferring the first array in and out of the means for sustaining a pressure gradient between solutions and a second translation subsystem means for moving, transferring, raising and lowering the second array and a third translation subsystem means for moving, transferring, raising, and lowering the second array, and at least a supplemental means for moving, transferring, raising and lowering a microplate and a computer means to control the first, second and third translation means must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

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7. The specification is missing a description of Figs. 4a-b and 6a-c in Brief Description of Drawing section of application. Correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a means for sustaining a pressure gradient between solutions in contact with two ends to drive transport and a computer means to control the pressure source, does not reasonably provide enablement for a first translation subsystem means for transferring the first array in and out of the means for sustaining a pressure gradient between solutions and a second translation subsystem means for moving, transferring, raising and lowering the second array and a third translation subsystem means for moving, transferring, raising, and lowering the second array ,and at least a supplemental means for moving, transferring, raising and lowering a microplate and a computer means to control the first, second and third translation means. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The specification does not mention the movement of the first or second arrays. Further, Figures 1-7 show no translation system as taught in claims 7 and 8.

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10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In reference to claim 1, it unclear as to what "two ends" applicant refers to in lines 4 and 10 of claim. Is it the two ends of the capillary?

In reference to claim 3, it's vague and indefinite as to what applicant means by "intrinsic and extrinsic" vacuum source.

In reference to claims 7-8, it is vague and indefinite as to what applicant means by " a first translation subsystem means for transferring the first array in and out of the means for sustaining a pressure gradient between solutions and a second translation subsystem means for moving, transferring, raising and lowering the second array and a third translation subsystem means for moving, transferring, raising, and lowering the second array ,and at least a supplemental means for moving, transferring, raising and lowering a microplate and a computer means to control the first, second and third translation means."

In claim 9, it is unclear if it is the external coating of the capillary tube that is made from the group comprising polyamide, polyethylene, polypropylene, etc.

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In claim 14, it unclear as to what is meant by the phrase “ at least one of sequential and parallel transport” as disclosed on line 2 of claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

13. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Pannussis et al.

(A Pneumatic Device for Rapid Loading of DNA Sequencing Gels).

Pannussis anticipate the instant claims by teaching a system for transferring liquid comprising a means for sustaining a pressure differential between solutions in contact with two ends to drive transport (pp. 546, para 2-3), a plurality of capillary tubes having a predetermined length and diameter (pp. 545, para 3), wherein the first end of the predetermined tube is positioned near the bottom of the first container and extends to a second container (Fig. 1) and whereby at least one of the liquid contained in the first container is transferred through the capillary tube to the second container where the pressure gradient or difference is applied (abstract).

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The first capillary tube spacing means to position a first end of the at least one capillary tube near the bottom of the first container is taught by Pannussis at (pp. 545, para 2), a second capillary tube spacing means to position a second end of the at least one capillary tube in a manner to deliver the liquid to the second container (pp. 546, para 2).

Pannussis also teaches a first translation subsystem means for transferring the first array in and out of the means for sustaining a pressure gradient between solutions in contact with two ends to drive transport, containing the at least one first container, a second translation subsystem means for moving, transferring, raising and lowering the second array, and at least a means for moving, transferring, raising and lowering a microplate (pp. 547 para 4 - pp. 548 para 1).

The capillary tubes constructed of a glass material with an external coating of a polyamide is taught by Pannussis at (pp. 545, para 2).

The means for raising the pressure within the means for sustaining a pressure gradient between solutions in contact with two ends to drive liquid transport comprises a source of pressurized air (pp. 546, para 2 and pp. 548, para 1).

14. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Webb (USP 4,621,665).

Webb anticipates the instant claims by teaching a system for transferring liquid comprising a means for sustaining a pressure differential between solutions in contact with two ends to drive transport (#9, Fig. 2) a plurality of capillary tubes having a predetermined length and diameter (# 2, Fig.1), wherein the first end of the predetermined tube is positioned near the

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bottom of the first container (# 7, Fig.1) and extends to a second container (# 1, Figs.1-2) and whereby at least one of the liquid contained in the first container is transferred through the capillary tube to the second container where the pressure gradient or difference is applied (Fig.2, and cols. 3-5).

Web teaches the liquid contained in the first container is transferred through the capillary tube by means of at least one of extrinsic vacuum source (# 8 & 9, col. 4, lines 53-59).

a first capillary tube spacing means (#17, Fig. 4) to position a first end of the least one capillary tube near the bottom of the first container, and a second capillary tube spacing means (# 11, Fig. 4) to position a second end of the at least one capillary tube in a manner to deliver the liquid to the second container (col. 4, lines 30-34).

Webb also teaches a first translation subsystem means for transferring the first array in and out of the means for sustaining a pressure gradient between solutions in contact with two ends to drive transport (#9 & 10 & 18), containing the at least one first container, a second translation subsystem means for moving, transferring, raising and lowering the second array, and at least a means for moving, transferring, raising and lowering a microplate (#16, Fig. 4).

15. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Kernan et al (USP 5,885,430).

Kernan teaches a system for transferring liquid comprising a means for sustaining a pressure differential between solutions in contact with two ends to drive transport, a plurality of capillary tubes having a predetermined length and diameter (# 292, Figs 6a & 6b), wherein the

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first end of the predetermined tube is positioned near the bottom of the first container (# 282, Figs 6a & 6b) and extends to a second container (# 290, Figs. Figs 6a & 6b) and whereby at least one of the liquid contained in the first container is transferred through the capillary tube to the second container where the pressure gradient or difference is applied (#312, Figs 6a & 6b).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pannussis et al. (*a Pneumatic Device for Rapid Loading of DNA Sequencing Gels*).

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In reference to claims 11 and 12, Pannussis has been discussed above and discloses the claimed invention except for the pressure is at least one of raised to between 0.5 lb. psi and about 10 lb psi or up to about 1000 psi. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided in Pannussis a pressure range for the vacuum source between 0.5 lb. psi and about 10 lb psi or up to about 1000 psi, since it has been held that where the general conditions of the claims are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In reference to claim 13, the Pannussis reference discloses the claimed invention except for a capillary tube with a predetermined length selected from a range of about 10-100 cm and a predetermined inner diameter selected from a range of about 10-500 micrometers. It would have been an obvious matter of design choice have provided in Pannussis a capillary tube with a predetermined length selected from a range of about 10-100 cm and a predetermined inner diameter selected from a range of about 10-500 micrometers, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Allowable Subject Matter

19. Claim 14 is allowed.
20. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest whereby solutions are deposited and removed in either

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direction by at least one of sequential and parallel transport of the solutions from a well having at least two capillaries, including the deposit of two or more solutions to be mixed and removal of a resulting mixture by an additional capillary.

21. Claim 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

22. Claims 1-14 are rejected

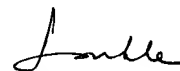
23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are Cargill et al., Yamada et al., Goodale et al., Brennan, Hayashizaki, Li et al., and Demorest for the teaching of a liquid-handling system for transferring liquid back and forth from at least one container to a second container.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to P. Kathryn Bex whose telephone number is (703) 306-5697.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.



P. Kathryn Bex
Patent Examiner
Group Art Unit 1743
March 6, 2000



LONG V. LE
PRIMARY EXAMINER

AU. 1743